

Remarks

Claims 1-12 remain pending in the application with claim 1 being in independent form. Claims 13-16 were previously cancelled. Claim 8 is being amended to correct a typographical error. Claims 1-7 and 9-12 are unchanged.

Claim 8 is objected to due to an informality. This claim has been amended as suggested by the Examiner to overcome this objection.

Claims 1-8 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kimber et al. in view of Dagli. Claims 9-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kimber et al. in view of Dagli and further in view of Walker et al.

Applicant has reviewed the prior art cited by the Examiner and the Examiner's comments and respectfully traverses the current rejections.

The Examiner purports that the subject matter of claim 1 is obvious in view of a combination of Kimber et al. and Dagli, with only a relatively minor modification of the structure of the device disclosed in Kimber et al. being required to produce the device as claimed. It is submitted that the Examiner's proposed modification is in fact a very significant modification of the device of Kimber et al., which fundamentally changes the operation of the device in Kimber et al. Making such a modification would also be contrary to the teaching of the prior art, as taught in Dagli for example.

Kimber et al. discloses a coplanar waveguide line comprising first and second parallel electrode strips. The Examiner suggests that an end portion of one of the electrode strips can be considered to be a further electrode strip. However, it is only the two portions of the electrode strips which are parallel to each other and to the waveguides which determine the behavior of the device. The end portions identified by the Examiner are merely contact tabs for providing a signal to the electrode strips. These end portions are not parallel to the remaining electrode strips and do not affect the

behavior of the device. The device therefore acts as an asymmetric coplanar waveguide line having two electrode strips.

Asymmetric coplanar waveguide lines are known in the art. In addition to Kimber et al., Dagli also discusses the behavior of such devices (see page 1163). It is known to include doped epitaxial layers in such devices. The Examiner mentions in the examination report (page 3, line 18) that the use of doped epitaxial layers is disclosed in Dagli (page 1163, col. 2). However, it should be borne in mind that Dagli only discloses the use of such layers in asymmetric coplanar waveguide lines.

Known asymmetric coplanar waveguide lines have a low drive voltage but have high microwave loss.

Deformation of the contact tab to form a further electrode strip parallel to the first and second electrode strips as proposed by the Examiner essentially adds a further electrode strip to the device. This fundamentally changes the operation of the device as the device now acts as a symmetric coplanar waveguide line. Symmetric coplanar waveguide lines are also known and are again described in Dagli (p1164 onwards). It is taught in Dagli that doped epitaxial layers cannot be used with symmetric coplanar waveguide lines (Dagli, p1165, last paragraph). Symmetric coplanar waveguide lines also have balanced capacitive loading (i.e., T rails on both sides of the central electrode) in order to operate.

In contrast to known asymmetric coplanar waveguide lines, symmetric coplanar waveguide lines have a low microwave loss and a high drive voltage.

It is desired to produce a coplanar waveguide line having both low drive voltage and low microwave loss. Dagli proposes a solution to this problem (bottom line of page 1165- first paragraph page1166). Such a proposed solution is however complex and does not perform well when compared to the current invention.

Starting from the asymmetric waveguide line disclosed in Kimber et al. and adding an extra electrode strip, as proposed by the Examiner, to arrive at the symmetric coplanar waveguide line of the current invention would be against two of the teachings of the prior art. In particular, one skilled in the art would need to maintain the doped epitaxial layer beneath the device when it is known not to include such doped epitaxial layers in symmetric coplanar waveguide lines. In addition, one skilled in the art would need to maintain the unbalanced capacitive loading on the central electrode strip when, again, it is known in the art that symmetric waveguide lines require symmetric capacitive loading.

Accordingly, it is submitted that the Examiner's proposed modification of the device disclosed in Kimber et al. to produce the invention is far from being a routine modification. There is no teaching in any of the prior art, either alone or in combination, that the novel structure of the coplanar waveguide line according to the invention will have both low drive voltage and low microwave loss. Further, this is not a modification that one skilled in the art would make with any reasonable expectation of success. In fact, since making such a modification would go against two of the teachings of the prior art, it is not a modification that one skilled in the art would be inclined to consider at all.

Accordingly, independent claim 1 is believed to be in condition for allowance. Claims 2-12 are also believed to be in condition for allowance as these claims depend from the unique and non-obvious features of claim 1.

The remaining references cited but not applied to the claims have been considered. Since the Examiner has apparently considered these references as less pertinent than the above discussed references, further discussion of the non-applied references, at this time, is considered unnecessary. However, it is respectfully submitted that the claims in the subject patent application patentably define over all references of record either independently or in combination.

Accordingly, it is respectfully submitted that the Application, as amended, is now presented in condition for allowance, which allowance is respectfully solicited. The Commissioner is authorized to charge our Deposit Account No. 08-2789 in the name of Howard & Howard Attorneys, P.C. for any fees or credit the account for any overpayment.

Respectfully submitted,

HOWARD & HOWARD ATTORNEYS, P.C.

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/SAMUEL J. HAIDLE/

Samuel J. Haidle, Registration No. 42,619
The Pinehurst Office Center
39400 Woodward Avenue, Suite 101
Bloomfield Hills, MI 48304-5151
(248) 723-0334